DOCUMENT RESUME

ED 466 221 IR 021 292

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TITLE Telematics Simulation: Recent Developments & Issues.

PUB DATE 2001-00-00

NOTE 7p.; In: ED-Media 2001 World Conference on Educational Multimedia, Hypermedia & Telecommunications. Proceedings (13th, Tampere, Finland, June 25-30, 2001); see IR 021 194.

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PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS Computer Oriented Programs; *Computer Simulation; Computer System Design; *Curriculum Development; *Educational Technology; Foreign Countries; Higher Education; Teleconferencing

IDENTIFIERS France; Germany; Norway; Spain; *Telematics

ABSTRACT

Recent developments in Internet technologies have enabled new, more flexible forms of telematic simulation and have raised issues that were not considered in the early days of networked learning. Ultimately, these questions revolve around: (1) the learning cost-effectiveness of telematic simulation (quality and quantity of learning as opposed to development, technology, and specialized training costs); (2) the necessary rethinking of learning and teacher roles on the one hand, and institutional commitment to change on the other; and (3) a variety of issues related to access. Project IDEELS is a Socrates/ERASMUS-funded curriculum development project that brings together a diverse group of educators and researchers from five tertiary institutions in four European countries, who share a common interest in using simulations and games in educational settings. The project team develops, tests, implements, and evaluates simulation scenarios and provides a range of accompanying materials (language practice, team-building, cross-cultural awareness-building, cognitive and thematic activities, as well as glossaries and other information resources) to meet the increasingly diverse needs of an expanding user base. This paper discusses Project IDEELS telematic simulations in term of enabling interdisciplinary learning, matching learning needs with technologies, supporting learner independence and responsibility, evolving teacher/facilitator roles, and balancing research, evaluation and validation needs without compromising the quality of the simulation experience. (Contains 19 references.) (AEF)

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ED 466 221

Telematics Simulation: Recent Developments & Issues

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Abstract: Recent developments in Internet technologies have enabled new, more flexible forms of telematic simulation and have raised issues that were not considered in the early days of networked learning. Ultimately, these questions revolve around (1) the learning cost-effectiveness of telematic simulation (quality and quantity of learning as opposed to development, technology and specialised training costs), (2) the necessary rethinking of learner and teacher roles, on the one hand, and institutional commitment to change, on the other, and (3) a variety of issues related to access. The panel members discuss Project IDEELS telematic simulations in terms of enabling interdisciplinary learning, matching learner needs with technologies, supporting learner independence and responsibility, evolving teacher/facilitator roles, and balancing research, evaluation and validation needs without compromising the quality of the simulation experience.

Introduction

Project IDEELS is a Socrates/ERASMUS-funded curriculum development project (CDI) that brings together a diverse group of educators and researchers from five tertiary institutions in four European countries who share a common interest in using simulations and games in educational settings. The Project team develops, tests, implements and evaluates simulation scenarios and provides a range of accompanying materials (language practice,

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team-building, cross-cultural awareness-building, cognitive and thematic activities as well as glossaries and other information resources) to meet the increasingly diverse needs of an expanding user base.

IDEELS owes much to its direct predecessor and inspirational role model, Project IDEALS, a US-based, FIPSE and NSF-funded telematic simulation project directed in the early 1990s by David Crookall at the University of Alabama, and to ICONS, an outstanding telematic simulation program with an International Relations focus directed by Jonathan Wilkenfeld at the University of Maryland. We have learned a great deal from both programs, but rather than trying to repeat a successful project like IDEALS or compete with an established, ongoing program like ICONS, IDEELS looks for ways to learn from their experience and build on their successes.

The diversity of the current project group has allowed us to benefit from the insights of an unusually rich mix of disciplinary perspectives in all phases of our work. Over the first 3½years of the project, members have developed and implemented a series of simulation packages with a distinctively European flavour. The thematic focus of the scenarios varies: education (November 1998 & November 1999), immigration (November 2000 & March 2001), the impact of technology (September 2001), water (November 2001). Participants so far have been students at tertiary institutions in five European countries; at least ten different academic fields and as many different nationalities have been represented. Throughout the project, recursive evaluation of all aspects of the project has played an important role; two

Supporting Interdisciplinary, International, Collaborative Learning

Learning Objectives

A combination of broadly defined shared and class- or discipline-specific and individual learning objectives allows participants to focus on their own learning needs while maintaining some common ground. The shared learning objectives fall into three main areas: co-operation/collaboration, socio-affective, and interdisciplinary/cross-cultural.

IDEELS' Shared Learning Objectives

co-operation / collaboration:
- develop team skills (listening, contributing, organising, giving feedback)
- accept responsibility for achieving group goals
- create and maintain an atmosphere of mutual respect

socio-affective:
- learn to trust
- learn to learn
- become more aware of one's learning styles and needs
- take responsibility for one's own learning
- develop the ability to respond flexibly to unexpected situations

interdisciplinary / cross-cultural:
- increase awareness and appreciation of, and respect for cultural differences
- develop cross-cultural and interdisciplinary communication skills
- apply these skills to the simulation process

Figure 1: Learning Objectives

Each group is expected to incorporate the shared learning objectives into its preparatory and debriefing activities; in addition, teacher-facilitators develop learning objectives consistent with their class' content and objectives, and students, in turn, are encouraged to set personal learning goals for themselves. The only constraint on the latter two sets of learning objectives is that they must not conflict with the shared learning objectives. This multi-tiered approach ensures a necessary degree of continuity while providing a highly adaptable learning opportunity for students from a wide range of disciplines. It also formalizes a commitment to learning in several areas not taught in most traditional educational settings: working in a team, taking responsibility for one's own learning and for one's part in the group's success, and becoming more aware of interdisciplinary and cross-cultural factors affecting successful communication.

Meeting Learners' Needs with Appropriate Learning Technologies and Situations

Possible Role of Personality Factors in the Use of Educational Technology

Since the early 1990's computer systems have supported computer mediated communication in ways which permit relatively naturalistic communication styles (e.g., e-mail, IRC, e-discussion lists), although this did not include video or audio conferencing except in rare research settings.

There appears to be little doubt among researchers that personality factors are of great importance in determining the successful use of information technology in educational settings (Clements, 1995; Hartley, 1998; Calvert, 1999; Harris, 1999 and Shavinia, 1999). Anecdotal evidence from composition and ESL/EFL teachers (including IDEELS project members) suggests that some students who rarely contribute to class discussions become quite outgoing when communicating via e-mail or in chat rooms. On the other hand, participants in IDEELS simulations rarely choose to communicate with other members of their own team via the software provided, preferring face to face communication, telephoning (or "SMS-ing"), chatting and e-mail using their regular accounts. Clearly, this is an area of human-computer interaction in the IDEELS context that deserves further investigation.

Appropriate Use of Technology

Computer conferencing systems are usually designed to support asynchronous transfer of text, pictures, and sometimes sound and, less frequently, live video signals. These facilities have led some to propose that the medium of computer conferencing might have potential as an environment for the teaching of language (Warschauer, 1997), since the supported features match those thought to be vital in language acquisition.

The OPUSi conferencing platform used in IDEELS simulations supports both intra- and inter-team asynchronous conferencing, synchronous teleconferencing, and – to a limited extent – collaborative writing. So-called "awareness tools" are almost entirely lacking, but there is a facility that allows for the creation of a "virtual library" of links to external web-based resources, including the IDEELS web site.

As about half the IDEELS project members are language teachers, language- and communication-related factors have played a role in several of the decisions taken regarding further development of OPUSi. A conscious decision was made, for example, not to incorporate video conferencing capabilities; it was felt that by using text-based conferencing, participants would respond to others' use of language rather than to other factors revealed in video conferencing (e.g. age, gender, physical appearance). This has interesting implications for language learning, as the likelihood of mis-communication – both of misunderstanding and of being misunderstood – increases when the usually available visual or auditory clues are missing; often a kind of information gap results that 1) spurs learners on to further attempts at communicating, 2) that can encourage analysis of the unsuccessful communication, and 3) that can encourage learners to consider how they might prevent a recurrence – all of which are useful activities that support language acquisition.

It is equally important to recognise and respect that many students and educators will not wish to experience electronic conferencing systems – at least not initially – regardless of any bells, whistles, or ergonomic qualities they may offer. Moreover, some recent research has indicated that relying exclusively on cyber interactions may be psychologically harmful for some users (Brenner, 1997; Kraut, et al, 1998; Sleek, 1998). An important issue we have tried to address is the challenge of providing adequate opportunities for such learners in the context of telematic simulation. One possible solution involves encouraging students in a group to organize themselves to allow each individual to "play to his or her strengths" – at least at the outset.

Personality Factors in Collaborative Work

Students' communication when working in groups is strongly predicted by those students' Myers-Briggs personality Type Inventory (MBTI) scores (Kagan et al., 1987). Modern computer-based teaching systems place an emphasis on collaboration, and the overall activity and types of interactions undertaken by a group are known to be also under the

influence of MBTI types such that the overall combined MBTI types of the individuals in a group accurately describe and predict that group's behaviour (Stever, 1995). This means that it is possible for an educator to accurately gauge the overall MBTI types of a particular cohort of students before formal educational practices begin. The potential for allowing modification of teaching style or learning environment to match individual MBTI types or even group MBTI types is enormous. For example, it has been found that most professors at universities teach in an MBTI type I (introverted) manner while students generally prefer an MBTI type S manner of teaching (Cooper & Miller, 1991), yet when professors deliberately teach in the manner matching their students' MBTI scores, student satisfaction ratings and overall grade performance are significantly enhanced (Provost, 1987; Cooper & Miller, 1991; McCutcheon et al., 1991; Fisher et al., 1998).

Currently, participants in IDEELS simulations are encouraged to complete an online MBTI questionnaire to become more aware of their own learning styles and needs. With our work investigating the links between personality types and student performance and attitudes in the IDEELS project we hope to be able to provide future educators using computer-supported learning environments with concrete data on the preferences they are likely to find amongst students with particular MBTI types.

Not Teaching, but Facilitating Learning

One of most important factors in making technology-enhanced learning environments successful is the presence of an adequately trained and resourced human facilitator. In other words, the most successful application of computer- and Internet-supported learning is as a complement to face-to-face classroom learning, not as a less expensive substitute. Project IDEELS resources for new group facilitators include manuals on facilitating and debriefing, facilitator training workshops, a facilitators' community in OPUSi, teaching suggestions and answer keys for many of the preparatory activities, one-on-one mentoring by experienced facilitators in the area, and a facilitator-training CD.

Issues for Distance Education

A short-term study of the use of DLE for the teaching of negotiation theory (McKersie & Fonstad, 1997) reported that there were major differences between the pedagogical methods that are suitable for normal teaching and those suitable for computer-based distance education. The major advantage noted for DLE was that it gives students access to educational resources that they might otherwise be unable to use because of time limitations or geographical location. This potential for greater access to higher and more specialized learning is of great interest to a wide group of potential students, including those whose physical or mental disabilities might have otherwise prevented them from such educational opportunities (Gay, 1996).

However these same factors also place a great responsibility on the designers and facilitators of DLE systems. The systems of strict deadlines for assignments or exercises becomes very problematic for students who may be pursuing distance education because they have insufficient time to devote themselves to traditional full-time education or because of some other factor in their lives. Another issue that is closely linked to this deadline problem is that of providing support in the course for students who fall behind in the course progression because of some legitimate reason. Many distance based instruction systems simply rely on the student working through the course modules more quickly on their own. When many students fall behind it is because other external factors have introduced considerable additional stresses into their schedules. It may be inappropriate to expect these students to adapt by increasing their academic work load, instead a more student centered approach may be to provide alternative credit accumulation schedules, with delayed examinations and class graduations away from a fixed academic calendar.

Meeting research, evaluation and validation needs without compromising the quality of the simulation experience

In Project Ideels we have implemented what we feel constitute ***unobtrusive measures*** of the participants' backgrounds and attitudes and of the effects of the simulation, in part through an on-line survey administered before

and after the simulation period[1]. The on-line survey consists of web-based questionnaires (HTML documents) that the participants can respond to at their convenience, either at the university / college or at home.

The pre- and post-simulation questionnaires measure the following (Fig. 2):

Pre-simulation questionnaire http://www.hint.no/~kne/ideels/pre_sim.htm	**Post-simulation questionnaire** http://www.hint.no/~kne/ideels/post_sim.htm
Background variables (gender, age, attitudes,experi ce etc.)	
Language related skills, attitu s	Effect on language development[2]
Cross-cultural / cross-disciplinary experience, perceptions, attitudes	Evaluation of cross-cultural experience
Collaboration experience/experience with team-work	Evaluation of team work
Expectations towards the simulation	Experience with the simulation
Human rights issues (November 2000 & March 2001)	Human rights issues – revisited – - allows for an evaluation of attitude change
	User Interface Satisfaction: evaluation of OPUSi software for teleconference within Project IDEELS

Figure 2: Comparison of Pre- and Post-Simulation Surveys

Since 1998 Project IDEELS have utilized this design of a pre- and post-simulation on-line survey of participants in four different simulations where the focus has been:

1998: Designing the Eutropolis Education System
1999: Tertiary Education and Training in Eutropolis and Eutropia
2000: Human Rights in Eutropia
2001: Immigration Policy in the Eutropian Federation

The questionnaires used across these four points in time have a common core of questions (both pre- and post-simulation questions), which allows for an analysis of effects across different scenarios.

Results from the Project IDEELS pre- and post-simulation surveys may be found at:

http://www.hint.no/~kne/ideels/results/

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Acknowledgements

Project IDEELS receives funding from the European Commission's Socrates/ERASMUS Programme.

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